

Hazard Containment Protocol for Class 1 Chemical Agents - Rodents

This protocol has been developed by the Office of Animal Resources (OAR) and Environmental Health & Safety (EHS) for Class 1 chemical agents use in animals. Both antineoplastic (cytotoxic) and hazardous drugs fall under the Class 1 agents category.

Please consult [Class 1 Chemical Agents Table](#) for a current list of chemicals subject to this containment protocol. [Acute Toxins](#) (current listing provided in the link), pesticides, RCRA chemicals, and newly developed drugs will require a separate protocol.

Hazardous Agent Specific Health Hazard Information

Class 1 chemical agents will have health information rating of 'highest health hazard'. Exposure to these chemical agents may cause adverse health effects including birth defects, and skin and eye irritation or corrosion. Therefore, proper PPE must be worn.

Drugs that are not metabolized by the body can be excreted in feces or urine. Therefore, proper waste management must be followed.

Engineering Controls:

1. All Class 1 drugs must be manipulated within a chemical fume hood, serving as a primary engineering control, or a preapproved hard-ducted biological safety cabinet.
 - a. Contact the OAR for questions about chemical fume hood access within an animal facility.
 - b. Contact Chemical Safety staff in EHS for advice about equipment present in the lab.
2. Engineering controls that will be used for primary containment must have a visual indication of airflow and alarms to indicate that airflow has fallen below acceptable standards. Engineering controls must be inspected prior to each use to ensure efficient removal of hazards.
3. Procedures must be performed to minimize the creation of aerosols.
4. Only needle-locking syringes or disposable syringe units (i.e., the needle is integral to the syringe) may be used for the injection or aspiration of an injectable Class 1 chemical agent. Following the procedure, the needle and syringe should be immediately disposed in a puncture-resistant sharps container. Needles are not bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal.
5. All work surfaces must be cleaned after use and immediately after a spill.
 - a. Researchers must ensure that the cleaning agent used is effective at deactivating the chemical/drug being handled.
 - b. Typically, a wetted paper towel with the solvent or aqueous solution used for the formulation or reconstitution of the chemical/drug will be effective for the initial cleaning of spilled surfaces.

Animal Study Location:

- Chemical agent formulations, reconstitution, and dilutions must be performed in the PI's laboratory.
- Chemicals administered to animals in the animal facility must be brought ready for administration.

List where Chemical agents will be administered

Chemical agents will be administered in the PI's laboratory and animals housed in the OAR Animal facility

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Handling Procedure/Personal Protective Equipment (PPE):

1. Minimum PPE requirements for the administration of Class 1 chemicals in animals includes: nitrile gloves, disposable gowns, goggles or safety glasses with side-shields.
 - a. Double gloving is recommended.
 - b. EHS recommends wearing an N95 dust mask while handling crushed or powdered chemicals, their contaminated dust, or animal feed containing chemical agents (e.g., tamoxifen containing animal feed).
 - i. If you are going to use an N95 dust mask or any other respirator, contact the EHS Industrial Hygienist to have a respirator use assessment conducted.
2. The lab must handle all cages during active exposure if using feed containing Class 1 chemicals (e.g. tamoxifen feed) or chemicals reconstituted in drinking water for animals.
 - a. Cages must be handled under a chemical fume hood when performing husbandry duties.
 - b. Details for the husbandry to be conducted must be included in the animal protocol.
 - c. Records of animal husbandry must be kept in the animal room.
3. Disposal of contaminated water bottle contents (e.g. water), storage containers, and feed will be done in the PI's laboratory per EHS guidelines.
 - a. Empty syringes and needles may be disposed of in a sharps container within an OAR animal facility.
 - b. Syringes/needles that contain chemicals that were not administered to an animal (e.g. additional syringes loaded with chemicals) must be disposed of in the PI's laboratory
4. Upon initial animal exposure, the PI will label cages with a yellow "Hazardous Agent" card.
 - a. Yellow Hazard cards must remain on cages until at least **72 hours** (shedding period) **beyond the last day the chemical was administered** (e.g. the last injection was given, last day animals had access to feed containing Class 1 chemicals) **AND** until the **cage has been changed out**
 - b. Proper PPE, as described above, must be worn to change animals to a clean

- cage.
- c. Cage change stations must be used to handle animals unless other primary containment equipment (such as a chemical fume hood) is detailed under *“Describe deviations from the above listed procedures and/or additional procedures specific to this research project”*.
 - d. OAR staff must use a dump station when dumping cages that contain bedding contaminated with Class 1 chemicals.
5. OAR husbandry staff will notate on the Hazard card when the cage has been changed so that the PI can remove the Hazard card at the appropriate time.
 6. Should the PI wish to change out the cage prior to the regular husbandry schedule, but after the expiration date, s/he may do so with the following precautions:
 - a. The yellow hazard card must be placed face up in the dirty (empty) cage to inform the cage wash staff of the potential chemical hazard present.
 - b. The filter top must be placed on the cage prior to placing it with other dirty caging waiting to be washed by the cage wash staff.
 7. Dirty cages that may contain chemical hazards must be returned to the dirty cage area for washing with:
 - a. A yellow card (½ sized card) placed inside of the used/dirty cage(s).
 - i. This lets the staff know they must wear gloves and use a dump station to dispose of the bedding.
 - b. Empty water bottles (if water with a Class 1 chemical was used).
 - c. Empty feeder tops (if feed with a Class 1 chemical was used).
 - d. A filter top placed/secured on top of the cage.

Required Cage Signage:

- Cages must be labeled with a yellow “Hazardous Agent” card (which may be obtained from any OAR facility supervisor).
- The Hazardous Agent cards must contain:
 - Agent(s) in use;
 - Expiration date (including time) when the animals are no longer shedding; and
 - Daytime & afterhours contact names(s) & numbers(s).

A yellow card (½ sized card) must be placed in used/dirty cages to let staff know they must wear gloves and use a dump station to dispose of the bedding. The filter top will be placed on top of the cage and the caging unit returned to the dirty cage area for washing.

Animal Transport:

- Animals exposed to chemicals transported between the OAR facilities and the investigator’s laboratories must be transported securely in their cage or within an approved animal transport.
- Refer to the IACUC’s policy on the Transportation of Animals for additional details on proper animal transportation procedures.
- In summary
 - A cart will always be used when more than two cages are transported at one time.

- Cages must be wrapped with breathable, disposable material.
- Cages must be securely shut so that, if dropped, animals cannot escape.
 - Cages can be secured by using:
 - clips (ex: binder clips)
 - tape
 - rubber band
- Barrier housed animals cannot leave the OAR housing facility and return.
 - A procedure room or cage change station within the y animal hooding room may be used for the administration of chemicals.
 - Other primary containment equipment (such as a chemical fume hood) may be required as detailed under “*Describe deviations from the above listed procedures and/or additional procedures specific to this research project*”.

Decontamination Procedures:

1. Surfaces should be wiped with an appropriate deactivating agent such as paper towel wetted with diluted bleach, water containing surfactants, isopropyl alcohol, etc. or using the manufacturer’s recommended cleanup procedures.
2. Similarly, the outer surface of contaminated equipment should be wiped using isopropanol and water before removing them from the designated area.
3. Glassware should be decontaminated and cleaned in a designated location.
4. Wash hands and arms with soap and water immediately after handling potentially contaminated items.
5. Waste materials generated from the decontamination procedures should be treated as hazardous waste and disposed of through EHS.
6. OAR’s cage washing procedures are sufficient for decontamination of cages housing Class 1 chemicals. Any special cleaning procedures should be performed within a chemical fume hood in the PI’s lab (e.g., cypermethrin is insoluble in water).
7. Water bottles used to deliver Class 1 chemicals to animals must be cleaned in the lab prior to returning to the dirty cage return location.
 - a. Fill the bottle with water in order to dilute the chemical and wash contents down the drain in accordance with EHS guidelines.
 - b. Wash the water bottle with soap and water and return to the OAR dirty caging return location.

List any special cleaning procedures, including decontamination of OAR caging equipment if necessary

Waste Disposal:

- Animal carcasses/tissues must be bagged in plastic bags and staged for disposal by placing the bag(s) in red biowaste tubs, located within the walk-in coolers, refrigerator, or freezers of each animal facility.
- Chemical hazard waste will be disposed of in the PI's lab according to EHS guidelines.
- If water bottles are used to deliver Class 1 chemicals to animals, these must be cleaned in the lab prior to return to OAR cage wash locations
 - Fill the bottle with water in order to dilute the chemical and wash the contents down the drain in accordance with EHS guidance.
 - Wash the water bottle with soap and water and return it to OAR cage wash.

Emergency Response:

Report any potential exposure incident to your supervisor and follow-up with University Employee Health Clinic.

Emergency Contacts:

Employee health Clinic: 356-3631

After hours and weekend Emergency Treatment Center: 356-2233.

Lab emergency contact: _____

Lab emergency contact: _____

Eye: If eye contact occurs, wash affected areas with copious amounts of water for 15 minutes and IMMEDIATELY seek medical advice.

Skin: If skin contact occurs, wash affected areas with copious amounts of water for 15 minutes and IMMEDIATELY seek medical advice.

Mouth: If swallowed, seek IMMEDIATE medical advice.

List the chemical agents that will require the above containment:

Multiple chemical agents, from Class 2 and Class 5, may be included in Class 1 protocol

Specify shedding duration per chemical if greater than 72 hours:

Describe deviations from the above listed procedures and/or additional procedures specific to this research project.

Are there protocol specific special PPE, safety, and decontamination procedures?

PI Signature

Date

Hazard Containment Protocol

Office Use Only

Protocol# _____

Reviewer	Signature	Date
OAR/IACUC Veterinarian		
Environmental Health & Safety Office		